

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-30 (Canceled).

Claim 31 (Previously Presented): A waterproof breathable sole for shoes, comprising, for at least part of its extension, at least two structural layers, wherein a first structural layer is a lower layer provided with a supporting structure so as to form a tread, and a second structural layer is an upper microporous layer that is permeable to water vapor, said lower layer having two, upper and lower surfaces and portions that are open onto said upper layer, and wherein at least one of two surfaces of said upper layer comprises a coating formed by plasma deposition treatment for waterproofing.

Claim 32 (Previously Presented): The sole according to claim 31, wherein said coating is provided on the upper surface of said upper layer.

Claim 33 (Previously Presented): The sole according to claim 31, wherein said coating is provided on the lower surface of said upper layer.

Claim 34 (Previously Presented): The sole according to claim 31, wherein said coating is provided both on the lower surface and on the upper surface of said upper layer.

Claim 35 (Previously Presented): The sole according to claim 31, wherein said upper layer and said lower layer are joined hermetically along a perimeter region thereof in order to avoid water infiltrations.

Claim 36 (Previously Presented): The sole of claim 35, wherein said upper layer is made of sintered plastic material.

Claim 37 (Previously Presented): The sole according to claim 36, wherein said sintered plastic material is polyethylene, polypropylene, polystyrene or polyester.

Claim 38 (Previously Presented): The sole according to claim 31, wherein said upper layer is selected from a group of materials comprising a felt, a fleece, a fabric and mesh made of synthetic material.

Claim 39 (Previously Presented): The sole according to claim 31, wherein said upper layer has an average pore width between 3 and 250 μm .

Claim 40 (Previously Presented): The sole according to claim 31, wherein said upper layer is hydrophobic.

Claim 41 (Previously Presented): The sole of claim 31, wherein said lower layer is constituted by a perimetric skirt that constitutes an outer edge of the sole, and by ground contact elements, which are made so as to support said upper layer, and wherein spaces of said lower layer comprised between each one of said ground contact elements, and between said ground contact elements and said skirt, form said portions.

Claim 42 (Previously Presented): The sole of claim 31, wherein said plasma deposition treatment is a high-vacuum cold plasma treatment.

Claim 43 (Previously Presented): The sole of claim 42, wherein said plasma deposition treatment is carried out with a radiofrequency generator so that a treatment electrical field oscillates with a frequency substantially between 13 MHz and 14 MHz.

Claim 44 (Previously Presented): The sole of claim 42, wherein said plasma deposition treatment is carried out with a radiofrequency generator so that a treatment electrical field oscillates with a frequency preferably on the order of 13.56 MHz.

Claim 45 (Previously Presented): The sole of claim 43, wherein said plasma deposition treatment is carried out with a power of the treatment electrical field that is substantially between 50 and 700 W.

Claim 46 (Previously Presented): The sole of claim 42, wherein a duration of said plasma deposition treatment for a siloxane-based monomer coating is between 160 seconds and 600 seconds.

Claim 47 (Previously Presented): The sole according to claim 46, wherein a duration of said plasma deposition treatment for a siloxane-based monomer coating is substantially equal to 420 seconds.

Claim 48 (Previously Presented): The sole of claim 42, wherein a vacuum level in said plasma deposition treatment is substantially between 10^{-1} mbar and 10^{-5} mbar.

Claim 49 (Previously Presented): The sole according to claim 31, wherein said plasma deposition treatment is a high-vacuum cold plasma treatment applied with a

radiofrequency generator so that a treatment electrical field oscillates with a frequency on the order of 13.56 MHz, with an applied electrical field power equal to 50-700 W and a vacuum level between 10^{-1} mbar and 10^{-5} mbar.

Claim 50 (Previously Presented): The sole of claim 49, wherein a precursor material of the plasma deposition is a siloxane-based monomer.

Claim 51 (Previously Presented): The sole of claim 49, wherein a precursor material of the plasma deposition is an oil-repellent and water-repellent fluoropolymer.

Claim 52 (Previously Presented): The sole according to claim 31, wherein a material of said coating is a polysiloxane.

Claim 53 (Previously Presented): The sole according to claim 31, wherein a material of said coating is an oil-repellent and water-repellent fluoropolymer.

Claim 54 (Previously Presented): The sole according to claim 53, wherein said fluoropolymer is a commercially available material.

Claim 55 (Withdrawn): A breathable and waterproof sole for shoes having an extension thereof and comprising: at least two structural layers extending for at least part of the extension, with a lower layer with a supporting structure so as to form a tread and an upper microporous layer that is permeable to water vapor; and a waterproof membrane provided above said upper layer, said lower layer being provided with portions that are open

U.S. application serial no. 10/585,085
Reply to the Official Action of February 8, 2011

onto said upper layer, and said upper layer and said waterproof membrane being hermetically joined along a perimeter region thereof so as to avoid water infiltrations.

Claim 56 (Withdrawn): A waterproof and breathable shoe, comprising a sole as set forth in claim 55.

Claim 57 (Withdrawn): A waterproof and breathable shoe, comprising the following combination of elements:

an assembly that surrounds in a pouch-like manner a foot insertion region and comprises a breathable upper with a waterproof membrane associated thereto at least in a downward region, and

a sole that is located below said assembly and comprises, along at least part of an extension thereof, at least two structural layers, with a lower layer having a supporting structure so as to form a tread, and an upper layer being microporous and permeable to water vapor, said lower layer having portions that are open onto said upper layer.

Claim 58 (Withdrawn): The shoe according to claim 57, wherein said assembly is composed of an upper and of a breathable or perforated insole that is joined to edges of said upper by way of stitches according to a structure selected from a "strobel" and "ideal welt" structures, so as to form a pouch, said waterproof membrane adhering to said breathable or perforated insole, said assembly comprising a sealing area located along a perimeter of said waterproof membrane that straddles said stitched seams and said waterproof membrane.

Claim 59 (Withdrawn): The shoe according to claim 57, wherein said assembly is composed of an upper that is coupled externally to said sole by way of lower edges thereof and internally to a waterproof membrane that forms a pouch for containing foot insertion.

Claim 60 (Previously Presented): The shoe of claim 31, wherein said microporous upper layer that is permeable to water vapor is made of leather.

Claim 61 (New) A waterproof breathable sole for shoes, comprising, for at least part of its extension, at least two structural layers, wherein a first structural layer is a lower layer provided with a supporting structure so as to form a tread, and a second structural layer is an upper microporous layer that is permeable to water vapor, said lower layer having two, upper and lower surfaces and portions that are open onto said upper layer, and wherein at least one of two surfaces of said upper layer comprises a coating formed by plasma deposition treatment for waterproofing,

wherein said upper layer and said lower layer are joined hermetically along a perimeter region thereof in order to avoid water infiltrations,\

wherein said lower layer is constituted by a perimetric skirt that constitutes an outer edge of the sole, and by ground contact elements, which are made so as to support said upper layer, and wherein spaces of said lower layer comprised between each one of said ground contact elements, and between said ground contact elements and said skirt, form said portions,

wherein said plasma deposition treatment is a high-vacuum cold plasma treatment applied with a radiofrequency generator so that a treatment electrical field oscillates with a frequency on the order of 13.56 MHz, with an applied electrical field power equal to 50-700

U.S. application serial no. 10/585,085
Reply to the Official Action of February 8, 2011

W and a vacuum level between 10^{-1} mbar and 10^{-5} mbar, and wherein a precursor material of the plasma deposition is an oil-repellent and water-repellent fluoropolymer.